

STRUCTURE OF MICROCARD

I02/1 = Structure of microcard

I01/2 = Special features

I05/1 = Test sequence

I16/1 = Table of contents

Continue: I02/1 Fig.: I01/2

	1		2			
	12345	67890	12345	67890	12345	678
	SIS					
A	XXXXX	XXXXX	XXXXX	XX		
B	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX	XXX
C	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX	XXX
D	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX	XXX
E	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX	XX
F						
G						
H						
J						
K						
L						
M						
N						X XXX
	12345	67890	12345	67890	12345	678
		1		2		

Continue: I02/1

DESCRIPTION OF TROUBLE-SHOOTING
INSTRUCTIONS

User prompting is provided on every
page e.g.:

- Continue: B17/1
- Continue: B18/1 Fig.: B17/2
- Yes: B18/1 No: B15/2
- Yes: B17/1 No: B16/1 Fig.: B15/2

.../1 = upper coordinate half

.../2 = lower coordinate half

Continue: I03/1

SPECIAL FEATURES

- * These instructions describe the setting and testing of DISTRIBUTOR-TYPE FUEL-INJECTION PUMPS FOR DIRECT-INJECTION ENGINES (DI distributor-type fuel-injection pumps) and supplement the test instructions for:
 - Distributor-type fuel-injection pumps and
 - EDC distributor-type fuel-injection pumps
- * The procedures described in these instructions are always to be employed for DI distributor-type fuel-injection pumps.
Important:
Non-observance will lead to completely wrong settings.

Continue: I03/2

SPECIAL FEATURES

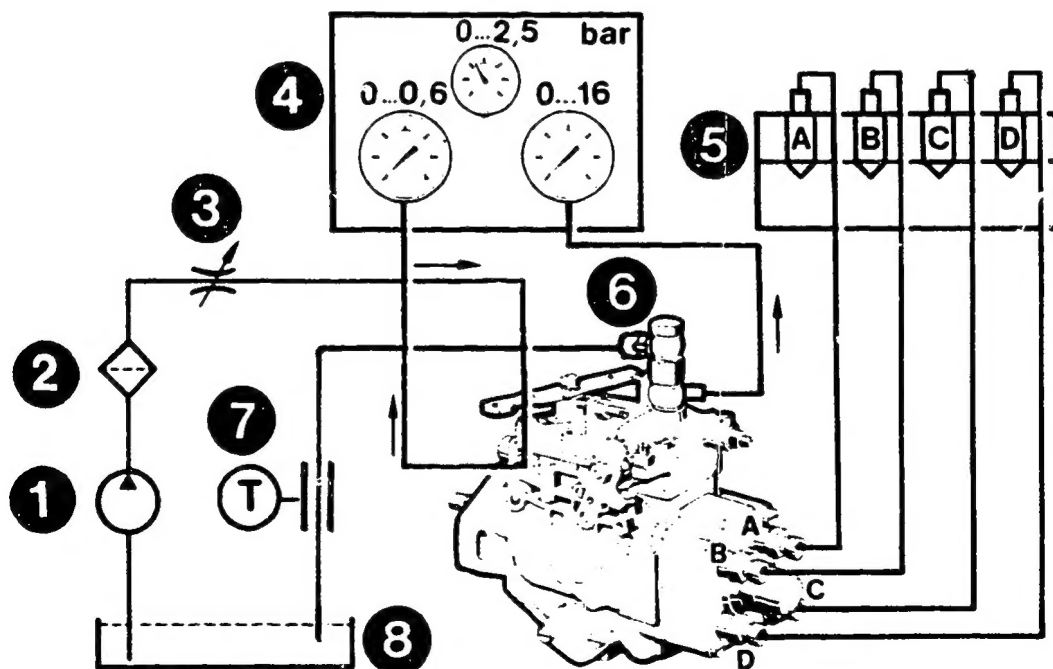
- * DI distributor-type fuel-injection pumps come in two categories:
 - Return temperature 45 Grad
 - Return temperature 55 GradThe respective test-specification sheets are marked in line with and the test sequence geared to the above.
- * The test procedure has been released for delivery measurement with
 - glass or
 - KMM (continuous quantity measurement system).

Continue: I04/1

TEST SET-UP

- 1 = Supply pump
- 2 = Filter
- 3 = Pressure regulator, inlet
- 4 = Pressure gauge 0...0.6 bar
(Inlet pressure)
Pressure gauge 0...1.6 bar
(Boost pressure)
Pressure gauge 0...16 bar
(Supply pump pressure)
- 5 = Nozzle-and-holder assembly
- 6 = Overflow restrictor or
OUT screw
- 7 = Thermometer
- 8 = Calibrating-oil vessel

Continue: I05/1 Fig.: I04/2



KMK 03015

TEST SEQUENCE

Principle

Before measuring delivery, the overflow temperature is always to be brought to the initial value by way of speed change. Starting from this initial value, the temperature of the back-flowing calibrating oil may increase or drop off. All measurements are to be performed with the prescribed number of strokes.

Continue: I05/2

TEST SEQUENCE

Principle

The short dwell time at heating-up speed implemented in the test sequence, the dwell time prior to the start of measurement and the long cumulative measurement bring about the desired improvement in the temperature behavior of the calibrating oil during measurement.

The speed sequence when checking the injection pump is arbitrary for this test sequence.

The sequence for injection-pump adjustment is to be implemented in line with the valid test-specification sheet in each case.

Continue: I06/1

VE..E DISTRIBUTOR-TYPE
FUEL-INJECTION PUMP
Continue on Coordinate: I11/1

VE..F DISTRIBUTOR-TYPE
FUEL-INJECTION PUMP

Continue: I06/2

VE..F DISTRIBUTOR-TYPE
FUEL-INJECTION PUMP
Flow diagram

1. Start
2. Heat up tank and injection pump
3. Set d w e l l s p e e d
4. Set t e m p e r a t u r e
r e g u l a t i o n s p e e d,
wait for
s t a r t i n g
t e m p e r a t u r e

Continue: I07/1

VE..F DISTRIBUTOR-TYPE
FUEL-INJECTION PUMP
Flow diagram

5. Set test speed
6. Wait for measurement temperature
7. Measure delivery
8. Set dwell speed
9. Last test point

Continue: I07/2

VE..F DISTRIBUTOR-TYPE
FUEL-INJECTION PUMP
Flow diagram

The test sequence is repeated starting from item 4 for every delivery test point until all test points have been dealt with.

The data regarding:

- * Dwell speed
- * Temperature regulation speed
- * Starting temperature
- * Measurement temperature

are to be taken from the valid test-specification sheet in each case.

Continue: I08/1

VE..F DISTRIBUTOR-TYPE
FUEL-INJECTION PUMP
Test sequence

- * Always pay attention to the data given in the valid test-specification sheet in each case.
- * The extension to the test-specification sheet covers all delivery settings and delivery check values. Exceptions are the settings and check values for:
 - Overflow quantity
 - Supply pump pressure
 - Timing-device travel

Continue: I08/2

VE..F DISTRIBUTOR-TYPE
FUEL-INJECTION PUMP
Test sequence

The distributor-type fuel-injection pump is clamped to an injection-pump test bench.

1. Heat up content of test-bench tank and fuel-injection pump at temperature regulation speed to corresponding inlet and return temperature. In the case of test benches which feature electric heating, this is to be additionally switched on so as to shorten the warm-up phase.

Continue: I09/1

VE..F DISTRIBUTOR-TYPE
FUEL-INJECTION PUMP
Test sequence

In the case of test benches with vacuum/heating throttle, this is to be closed during the warm-up phase. The vacuum/heating throttle is to be fully opened after attaining the specified inlet temperature.

2. Set supply pump pressure and timing-device travel.
3. Set d w e l l s p e e d.

Continue: I09/2

VE..F DISTRIBUTOR-TYPE
FUEL-INJECTION PUMP
Test sequence

Set t e m p e r a t u r e
r e g u l a t i o n s p e e d
as a function of test speed.
Wait for s t a r t i n g
t e m p e r a t u r e a t
t e m p e r a t u r e
r e g u l a t i o n s p e e d and
read off from thermometer in
calibrating-oil return.

Continue: I10/1

VE..F DISTRIBUTOR-TYPE
FUEL-INJECTION PUMP
Test sequence

Set test speed.
Wait for measurement
temperature and start
measurement
Glass: Start of 1000 stroke
measurement
KMM: Read off measured values on
reaching measurement
temperature
Set dwell speed immediately
after measurement. Repeat procedure
if necessary.

Continue: I10/2

VE..F DISTRIBUTOR-TYPE
FUEL-INJECTION PUMP
Test sequence

4. Proceed for all further delivery
test points as indicated under
item 3.
5. The adjusting screws are to be
secured following adjustment.

Testing over.

Continue: I16/1

VE..E DISTRIBUTOR-TYPE
FUEL-INJECTION PUMP
Flow diagram

1. Start
2. Heat up tank and injection pump
3. Set d w e l l s p e e d
and checkback voltage
4. Check t e m p e r a t u r e
r e g u l a t i o n s p e e d
and checkback voltage,
wait for
s t a r t i n g
t e m p e r a t u r e

Continue: I11/2

VE..E DISTRIBUTOR-TYPE
FUEL-INJECTION PUMP
Flow diagram

5. Set test speed
6. Wait for m e a s u r e m e n t
t e m p e r a t u r e
7. Measure delivery
8. Set d w e l l s p e e d
9. Last test point

Continue: I12/1

VE..E DISTRIBUTOR-TYPE
FUEL-INJECTION PUMP
Flow diagram

The test sequence is repeated starting from item 4 for every delivery test point until all test points have been dealt with.

The data regarding:

- * Dwell speed
- * Temperature regulation speed
- * Starting temperature
- * Measurement temperature
- * Checkback voltage

are to be taken from the valid test-specification sheet in each case.

Continue: I12/2

VE..E DISTRIBUTOR-TYPE
FUEL-INJECTION PUMP
Test sequence

- * Always pay attention to the data given in the valid test-specification sheet in each case.
- * The extension to the test-specification sheet covers all delivery settings and delivery check values. Exceptions are the settings and check values for:
 - Overflow quantity
 - Supply pump pressure
 - Timing-device travel

Continue: I13/1

VE..E DISTRIBUTOR-TYPE
FUEL-INJECTION PUMP
Test sequence

The distributor-type fuel-injection pump is clamped to an injection-pump test bench.

1. Warm up content of test-bench tank and injection pump at temperature regulation speed until corresponding inlet and return temperature is reached. Set checkback voltage 2.5 Volt on EDC-VE tester.

Continue: I13/2

VE..E DISTRIBUTOR-TYPE
FUEL-INJECTION PUMP
Test sequence

In the case of test benches which feature electric heating, this is to be additionally switched on to shorten the warm-up phase. In the case of test benches with vacuum/heating restrictor, this is to be closed during the warm-up phase.

The vacuum/heating restrictor is to be fully opened after attaining the prescribed inlet temperature.

2. Set supply pump pressure and timing-device travel.

Continue: I14/1

VE..E DISTRIBUTOR-TYPE
FUEL-INJECTION PUMP
Test sequence

3. Set d w e l l s p e e d.
Set checkback voltage 2.5 Volt
on EDC-VE tester. Select and set
t e m p e r a t u r e
r e g u l a t i o n s p e e d
as a function of test speed.
Wait for s t a r t i n g
t e m p e r a t u r e
a t t e m p e r a t u r e
r e g u l a t i o n s p e e d
and read off from thermometer in
calibrating-oil return.

Continue: I14/2

VE..E DISTRIBUTOR-TYPE
FUEL-INJECTION PUMP
Test sequence

Set test speed and checkback voltage
on EDC-VE tester. Wait for
m e a s u r e m e n t
t e m p e r a t u r e and start
measurement.

Note:

Glass: Start of 1000 stroke
measurement

KMM: Read off measured values on
obtaining measurement
temperature

Continue: I15/1

VE..E DISTRIBUTOR-TYPE
FUEL-INJECTION PUMP
Test sequence

Set dwell speed and
checkback voltage 2.5 Volt on
EDC-VE tester immediately after
measurement.

Repeat procedure if necessary.

4. Proceed accordingly as outlined
under Item 3 for all further
delivery test points.

Continue: I15/2

VE..E DISTRIBUTOR-TYPE
FUEL-INJECTION PUMP
Test sequence

5. The fastening screws of the
injected-quantity adjuster are to
to be secured with locking compound
following adjustment.

Testing over.

Continue: I16/1

TABLE OF CONTENTS

Special features.....	I03/1
Test set-up.....	I04/1
Test sequence, principle.....	I05/1
VE..F distributor-type fuel-injection pump	
Flow diagram.....	I06/2
VE..F distributor-type fuel-injection pump	
Test sequence.....	I08/1
VE..E distributor-type fuel-injection pump	
Flow diagram.....	I11/1
VE..E distributor-type fuel-injection pump	
Test sequence.....	I12/2

Continue: I01/1